

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
UNDER THE PATENT COOPERATION TREATY BEFORE THE  
UNITED STATES DESIGNATED/ELECTED OFFICES

In regard to international application:

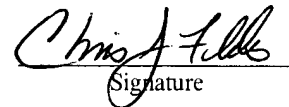
Serial No. PCT/BR2003/000108  
Applicant: Sergio Martins Costa  
Filing Date: August 1, 2003  
Title: DESALINATION MACHINE  
Attorney Docket No. 10008.010

To: Mail Stop PCT  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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**PRELIMINARY AMENDMENT**

Sir:

In connection with entry into the National Phase in the United States of the above referenced application, please amend the application as follows:

**In The Claims:**

Amend claims 1 - 4 as follows:

1. (currently amended) "~~Desalinization Machine~~", A desalinization machine comprising ~~[[of]]~~ a series of vertical tube bundles, each bundle compounding an evaporator or stage, supported and sealed by an upper and a bottom tube sheet, in a multi effect process, ~~characterised by~~ characterized by having the assembling of the stages in a concentric disposition (~~Fig 1, 10 and 16~~), where the first stage is a shell and tube exchanger in a ring format, here named Ring Shell and Tube Evaporator (~~Figs 3 and 11~~) having a free space at the ~~centre~~ center of the bundle, where is inserted the next stage or intermediate stage that is a bundle of tubes in a ring format, here named Ring Bundle Evaporator, having also a free space in the ~~center~~ centre (~~Fig.12~~), where is inserted the next stage that could be another intermediate stage or the last stage that is a bundle of vertical tubes here named Cylindrical Bundle Evaporator (~~Fig. 5~~).

2. (currently amended) "~~Desalinization machine~~" The desalinization machine according to claim 1, where the Ring Shell and Tube Evaporator (~~Fig 2 and 3~~) are is characterized by ~~characterized by~~ having the following features:

- a) an internal wall ~~[[3]]~~;
- b) a ~~vapour~~ vapor chamber above the upper tube sheet defined by an extension of said internal wall ~~[[3]]~~ and a circumferential external wall ~~51 (Fig 3)~~ welded at the edge of the upper tube sheet, with a flange on the top to support the second stage;
- c) a number of circular supports (~~42~~) (~~Fig. 11~~) equal to the number of stages less 2.

3. (currently amended) "~~Desalinization machine~~" The desalinization machine according to claim 1, where the Ring Bundle Evaporator is ~~characterized by~~ characterized by having the following features:

- a) an internal wall ~~40 (Fig. 11)~~;
- b) a ~~vapour~~ vapor chamber above the upper tube sheet defined by an extension of said internal wall ~~[[40]]~~ and a circumferential external wall ~~52 (Fig. 13)~~ welded at the edge of the upper tube sheet, with a flange on the top to support the succeeding stage;
- c) an external wall ~~47 (Fig. 5)~~, here named armour that encloses the ~~vapour~~ vapor

inside the tube bundle;

- d) the upper tube sheet being 30% larger in diameter than the bottom tube sheet.

4. (currently amended) "~~Desalinization machine~~" The desalinization machine according to claim 1, where the Cylindrical Bundle Evaporator is ~~characterized by~~ characterized by having the following features:

- a) an external wall ~~36 (Fig-13)~~ here named armour that encloses the ~~vapour~~ vapor inside the tube bundle;
- b) a tray ~~19 (Fig-13)~~ to collect salt water from the preceding stage to ~~directs~~ direct this water to the central tube [[20]];
- c) the upper tube sheet being 30% larger in diameter than the bottom tube sheet.